

16th INTERNATIONAL CONFERENCE
Dynamical Systems – Theory and Applications
December 6-9, 2021
On-line



DETAILED PROGRAM

1. Monday, December 6, 2021

Opening ceremony, 9:00 - 9:30

<https://zoom.us/j/99337673864>

K1. Keynote lecture, 9:30 - 10:20

<https://zoom.us/j/99337673864>

<i>Keynote speaker:</i>	Soumitro BANERJEE* , Arnab Acharya, Pratik Jeware	<i>The dynamical behaviour of a quantum impact oscillator</i>
<i>Chair:</i>	Miguel A. SANJUÁN	

Coffee break, 10:20 - 10:30

S6a

10:30-11:45

Chair: **Roberta SANTORO**

<https://zoom.us/j/93397654124>

10:30-10:45	VIB 292	1	Zinon Chatzopoulos*, Antonio Palermo, Sebastian Guenneau, Alessandro Marzani	<i>Cloaking of love waves</i>
10:45-11:00	VIB 289	2	Stefan Janssen, Lucas Van Belle*, Noé Geraldo Rocha De Melo Filho, Claus Claeys, Wim Desmet, Elke Deckers	<i>Improving the noise insulation performance of vibro-acoustic metamaterial panels through multi-resonant design</i>
11:00-11:15	EXP 310	3	Luca Sangiuliano*, Björn Reff, Jacopo Palandri, Friedrich Wolf Monheim, Bert Pluymers, Elke Deckers, Wim Desmet, Claus Claeys	<i>Low frequency tyre noise mitigation in a vehicle using metal 3D printed resonant metamaterials</i>
11:15-11:30	CON 345	4	Moris Kalderon*, Marina Kalogerakou, Andreas Paradeisiotis, Ioannis Antoniadis	<i>Locally resonant metamaterials utilizing dynamic directional amplification</i>
11:30-11:45	VIB 285	5	Andrea Francesco Russillo*, Giuseppe Failla	<i>A dynamic-stiffness framework for locally resonant structures</i>

R1

10:30-11:45

Chair: Kiyotaka YAMASHITA<https://zoom.us/j/99024032388>

10:30-10:45	VIB 088	1	Kiyotaka Yamashita*, Koki Kitaura, Naoto Nishiyama, Hiroshi Yabuno	<i>Non-planar motions due to nonlinear interactions between unstable oscillatory modes in a cantilevered pipe conveying fluid</i>
10:45-11:00	VIB 196	2	Lelya Khajiyeva, Askar Kudaibergenov, Askat Kudaibergenov, Aliya Umbetkulova*	<i>The effect of initial stress on nonlinear lateral vibrations of rotating rods</i>
11:00-11:15	VIB 269	3	J. Awrejcewicz, I.I. Andrianov*, A.A. Diskovsky	<i>Higher order asymptotic homogenization for dynamical problems</i>
11:15-11:30	VIB 320	4	Harshan Jayakumar Manjusha*, Premchand V.P., Remil George Thomas	<i>Vibration isolation in metamaterial structures embedded with neoprene resonators</i>
11:30-11:45	VIB 321	5	Harshan Jayakumar*, Premchand VP, Remil George Thomas	<i>Analysing vibration attenuation characteristics of Al 6061 metamaterial structures</i>

R2

10:30-11:45

Chair: Tassos BOUNTIS<https://zoom.us/j/96412270060>

10:30-10:45	ENG 280	1	Tassos Bountis*, Konstantinos Kaloudis, Joniald Shena, Charalampos Skokos, Christos Spitas	<i>Energy transport in 1-dimensional oscillator arrays with hysteretic damping</i>
10:45-11:00	ENG 217	2	Andrzej Rysak, Martyna Sedlmayr	<i>Application of the differential transform method to the study of the Duffing system with fractional damping and stiffness</i>
11:00-11:15	ENG 224	3	Alfons Ams	<i>Simulation of road surface profiles by a stochastic parametrical model</i>
11:15-11:30	ENG 271	4	Łukasz Kloda*, Stefano Lenci, Jerzy Warmiński, Zofia Szmít	<i>Transversal-transversal internal resonances in planar Timoshenko beams with an elastic support</i>
11:30-11:45	ENG 361	5	Alyona Lovska*, Oleksij Fomin, Grzegorz M. Szymański, Dmytro Skurikhin	<i>Determination of the loading of an open car with filler in the center sill</i>

R3

10:30-11:45

Chair: Walter LACARBONARA<https://zoom.us/j/95107236355>

10:30-10:45	MAT 009	1	Jing Wang*, Wim T. van Horssen	<i>On longitudinal oscillations in a hoisting cable with time-varying length subject to a nonclassical boundary condition</i>
10:45-11:00	MAT 291	2	Z. Xia*, Y. Ishikawa, S. Kaneko, J. Kusaka	<i>Development of a cardiovascular mathematical model considering the thermal environment</i>
11:00-11:15	MAT 333	3	Kemal Arslan*, Recep Gunes	<i>Low-velocity impact response of metal-ceramic functionally graded plates: a novel numerical modelling approach</i>
11:15-11:30	MAT 382	4	Karuppaiya Sakkaravarthi*, Thambidurai Kanna	<i>Controllable optical rogue waves by modulated coherent-incoherent nonlinearities in inhomogeneous fiber</i>
11:30-11:45	ENG 100	5	Engin Kandiran*, Avadis Hacinliyan	<i>Continuous dynamical systems as pseudo random number generator</i>

Coffee break, 11:45 - 12:00

S6b

12:00-13:15

Chair: Giuseppe FAILLA<https://zoom.us/j/93397654124>

12:00-12:15	VIB 293	1	Xingbo Pu*, Antonio Palermo, Alessandro Marzani	<i>A 3D multiple scattering formulation to model elastic waves interacting with surface resonators</i>
12:15-12:30	CON 305	2	Miriam Chillemi*, Thomas Furtmüller, Christoph Adam, Antonina Pirrotta	<i>Assessing the effect of different configurations of inerter-based devices for structural vibration control</i>
12:30-12:45	VIB 348	3	Mina Ghassempour, Giuseppe Failla, Gioacchino Alotta*, Valentina Laface, Carlo Ruzzo, Felice Arena	<i>Vibration mitigation in offshore wind turbines by tuned mass absorbers</i>
12:45-13:00	CON 313	4	Breifni Fitzgerald*, Saptarshi Sarkar	<i>Inerter-based dampers for vibration control of floating offshore wind turbines</i>
13:00-13:15	ASY 304	5	Rahul Das*, Anil K. Bajaj, Sayan Gupta	<i>Performance of a nonlinear energy sink coupled with a nonlinear oscillator for energy harvesting applications</i>

R4

12:00-13:15

Chair: Lidiya V. KURPA<https://zoom.us/j/99024032388>

12:00-12:15	NUM 146	1	Shmatko Tetyana*, Kurpa Lidiya, Awrejcewicz Jan	<i>Dynamic analysis of functionally graded sandwich shells resting on elastic foundations</i>
12:15-12:30	NUM 003	2	Vladimir N. Sidorov , Elena S. Badina*	<i>Nonlocal damping model in finite element structural vibration analysis</i>
12:30-12:45	NUM 241	3	Alexander Ruchkin, Constantin Ruchkin*	<i>A multi-agent computer program for automatic investigation the behavior of a nonlinear dynamic system in real-time</i>
12:45-13:00	NUM 358	4	Mehdi Ebadi-Jamkhaneh*, Masoud Ahmadi, Denise-Penelope N. Kontoni*	<i>Seismic response of adjacent steel frames linked by friction dampers</i>
13:00-13:15	NUM 359	5	Mehdi Ebadi-Jamkhaneh*, Masoud Ahmadi, Denise-Penelope N. Kontoni*	<i>Deficient RC slabs strengthened with combined FRP layer and high-performance fiber-reinforced cementitious composite</i>

R5

12:00-13:15

Chair: Krzysztof KĘCIK<https://zoom.us/j/96412270060>

12:00-12:15	ENG 063	1	Krzysztof Kęcik*, Andrzej Mitura	<i>Modelling of an Electromechanical Coupling in Magnetic Levitation Energy Harvester</i>
12:15-12:30	ENG 078	2	Krzysztof Kęcik*, Andrzej Mitura	<i>Nonlinear dynamics of a 2DOF magneto-mechanical harvester</i>
12:30-12:45	ENG 089	3	Juraj Králik	<i>Probabilistic analysis of npp seismic load considering the local site effects</i>
12:45-13:00	ENG 120	4	Bartłomiej Ambrożkiewicz*, Grzegorz Litak*, Anthimos Georgiadis, Arkadiusz Syta, Nicolas Meier, Alexander Gassner	<i>Study on dynamical response of double-row self-aligning ball bearing (SABB) considering different radial internal clearance (RIC)</i>
13:00-13:15	VIB 378	5	Dmytro V. Astaykin, Andrii V. Bondarenko, Dmytro V. Danylenko, Oleg V. Dubrovsky*, Eugeny V. Ternovsky	<i>Stabilization of course of ships and damping vibrations caused by waves: nonlinear differential equations model and optimal control theory</i>

R6

12:00-13:15

Chair: Nicolae HERISANU<https://zoom.us/j/95107236355>

12:00-12:15	MAT 073	1	Nicolae Herisanu*, Vasile Marinca	<i>Dynamic response of simply-supported euler-bernoulli beam on non linear elastic foundation under a moving load</i>
12:15-12:30	MAT 076	2	Nicolae Herisanu*, Vasile Marinca	<i>Nonlinear vibration of a functionally graded beam on Winkler-Pasternak foundation under a moving force</i>
12:30-12:45	MAT 026	3	J. Flosi*, A. Ture Savadkoohi, C.-H. Lamarque	<i>Normal Form on nonlinear systems and Gröbner based exploitation of resonances</i>
12:45-13:00	MAT 027	4	Krzysztof Szemela*, Wojciech Rdzanek , Jerzy Wiciak, Roman Trojanowski	<i>Sound radiation by a circular plate located on a wall of rectangular semi-infinite waveguide</i>
13:00-13:15	BIF 363	5	Alexander V. Glushkov*, Andrey V. Tsudik, Oleg V. Dubrovsky, Olexsii L. Mykhailov	<i>Nonlinear dynamics of relativistic backward-wave tube: chaos, bifurcations and strange attractors</i>

Coffee break, 13:15 - 13:30**S6c**

13:30-15:00

Chair: Giuseppe FAILLA and Roberta SANTORO<https://zoom.us/j/93397654124>

13:30-13:45	EXP 275	1	Andreas Paradeisiotis*, Konstantinos Tsioumanis , Ioannis Antoniadis	<i>Experimental prototype of a KDamper vibration absorber for small vertical loads utilizing compliant joints</i>
13:45-14:00	CON 287	2	Alberto Di Matteo*, Chiara Masnata, Christoph Adam, Antonina Pirrotta	<i>Tuned liquid column damper inerter (TLCDI) for vibration control of fixed-base structures</i>
14:00-14:15	LIF 327	3	Antonina Pirrotta*, Andrea Evola, Alberto Di Matteo, Antonio Galvano, Antonio Russo	<i>Anti-vibration knob for the motorcycle, customizable on the basis of the driver's ergonomics</i>
14:15-14:30	OPT 298	4	Roberta Santoro, Matteo Mazzeo*, Giuseppe Failla	<i>Interval frequency response of uncertain locally resonant structures</i>
14:30-14:45	ENG 334	5	Andrea Burlon*, Mario Di Paola, Vincenzo Sucato	<i>Non-stationary stochastic dynamics analysis of structural systems equipped with fractional viscoelastic device</i>
14:45-15:00	ENG 279	6	Andrea Burlon*, Giuseppe Failla	<i>On the dynamics of high-order beams with vibration absorbers</i>

<p style="text-align: center;">R7 13:30-14:45 Chair: Fadi DOHNAL https://zoom.us/j/99024032388</p>				
13:30-13:45	NUM 315	1	Fadi Dohnal*, Athanasios Chasalevris	<i>Estimation of orbits after blade loss for a multi-disk rotor</i>
13:45-14:00	NUM 140	2	Helmut J. Holl	<i>Simulation of non-linear coupled dynamic systems of first and second order applying a semi-analytic method</i>
14:00-14:15	NUM 234	3	Luboš Smolík*, Jan Rendl, Radek Bulín	<i>Evaluation of forces in dynamically loaded journal bearings using feed-forward neural networks</i>
14:15-14:30	NUM 303	4	Tetyana Shmatko	<i>Effect of porosity on free vibration of FG shallow shells with complex planform</i>
14:30-14:45	CON 368	5	Alexander V. Glushkov, Valentin B. Ternovsky*, Oleksii L. Mykhailov, Andrey V. Tsudik	<i>Optimal control of resonance radiation processes in laser isotopes separation systems and devices</i>
<p style="text-align: center;">R8 13:30-14:45 Chair: Philipp SCHORR https://zoom.us/j/96412270060</p>				
13:30-13:45	ENG 174	1	W. Bielski, P. Kowalczyk, R. Wojnar	<i>Two-temperature heat transfer in a metal and a longitudinal elastic wave generation</i>
13:45-14:00	ENG 111	2	Krystian Polczyński*, Maksymilian Bednarek, Jan Awrejcewicz	<i>Magnetic oscillator under excitation with controlled initial phase</i>
14:00-14:15	ENG 213	3	V. Böhm, P. Schorr*, J. Chavez, L. Zentner	<i>Structural analyses of compliant tensegrity towers</i>
14:15-14:30	ENG 245	4	Przemysław Nosal*, Artur Ganczarski	<i>Application of the discrete element method to ductile materials subjected to dynamic loads</i>
14:30-14:45	ENG 153	5	Volodymyr Semenyuk, Vasyl Martsenyuk*, Valeriy Lingur, Nadiia Kazakova, Nataliia Puchenko, Pawel Fałat, Kornel Warwas	<i>A method to improve the accuracy of bridge cranes overload protection using the signal graph</i>
<p style="text-align: center;">R9 13:30-14:45 Chair: Krzysztof JAMROZIAK https://zoom.us/j/95107236355</p>				
13:30-13:45	OPT 155	1	Adam Kurzawa, Dariusz Pyka, Mirosław Bocian, Ludomir Jankowski, Marcin Bajkowski, Krzysztof Jamroziak*	<i>Validation of numerical models describing the stress-strain characteristics in the strength tests of composite materials on a metal matrix using the elasto-optic method</i>
13:45-14:00	OPT 012	2	J. Ghibaudo*, M. Aucejo	<i>A unified Bayesian formulation for the identification of force sources</i>
14:00-14:15	OPT 025	3	Rafał Brociek*, Agata Wajda, Damian Słota	<i>Comparison of selected artificial intelligence algorithms to determine the thermal conductivity coefficient of a porous material</i>
14:15-14:30	OPT 028	4	Agata Chmielowska*, Rafał Brociek, Damian Słota	<i>The reconstruction of the heat transfer coefficient in the fractional Stefan problem</i>
14:30-14:45	ASY 343	5	V.S. Igumnova *, A.V. Lukin, I.A. Popov, L.V. Shtukin	<i>Synchronization of oscillations of weakly coupled elastic elements of a differential resonant MEMS-accelerometer in the mode of a two-circuit self-oscillator</i>
Coffee break, 14:45 - 15:00				

K2. Keynote lecture, 15:00 - 15:50

<https://zoom.us/j/97675161096>

<i>Keynote speaker:</i>	Romesh C. BATRA	<i>Optimization of sandwich structures under blast loading</i>
<i>Chair:</i>	Andrzej BARTOSZEWICZ	

Coffee break, 15:50 - 16:00

S2a

16:00-17:15

Chair: José BALTHAZAR, Elżbieta JARZĘBOWSKA and Angelo TUSSET

<https://zoom.us/j/93397654124>

16:00-16:15	BIF 046	1	Mauricio A. Ribeiro, Angelo M. Tusset, Wagner B. Lenz, José M. Balthazar*, Grzegorz Litak	<i>On non-ideal and fractional dynamics of a magneto piezoelastic oscillator with Bouc-Wen damping to harvesting energy</i>
16:15-16:30	BIF 051	2	Leandro R. de Oliveira*, José M. Balthazar, Airton Nabarrete, Átila M. Bueno, Angelo M. Tusset, Eduardo A. Petrocino	<i>Some remarks on experimental analysis of a non-ideal conveyor belt</i>
16:30-16:45	BIF 218	3	R.H. Avanço*, D. A. Zanella, R. De Jesus A. Cantillo, A. Cunha Jr., J. M. Balthazar, A. M. Tusset	<i>The influence of the inductance on the nonideal vibrations of a pendulum coupled to a DC motor</i>
16:45-17:00	ENG 038	4	Jaroslav Zapoměl*, Petr Ferfecki, Jan Kozánek	<i>Reducing amplitude of nonlinear vibration of rotors induced by imbalance forces and the disc collisions using magnetically sensitive fluids</i>
17:00-17:15	ENG 129	5	Yuri V. Mikhlin*, Yana O. Lebedenko	<i>Resonance regimes in the non-ideal system having the pendulum as absorber</i>

R10

16:00-17:15

Chair: Elbert Einstein MACAU

<https://zoom.us/j/99024032388>

16:00-16:15	BIF 104	1	Juliana C. Lacerda, Celso Freitas, Elbert Macau*	<i>Multistability in remote synchronization detected via symbolic dynamics</i>
16:15-16:30	BIF 091	2	Laura Ruzziconi*, Nizar Jaber, Lakshoji Kosuru, Mohammed L. Bellaredj, Mohammad I. Younis	<i>Internal resonance induced in the impacting dynamics in a MEMS device</i>
16:30-16:45	BIF 184	3	Denis Blackmore	<i>Generalized Neimark-Sacker bifurcations</i>
16:45-17:00	BIF 254	4	Roberto De Leo*, James A. Yorke	<i>Infinite towers in the graph of a dynamical system</i>
17:00-17:15	BIF 172	5	Petr Sosna*, Zdenek Hadas	<i>Bifurcation analysis of nonlinear piezoelectric vibration energy harvester</i>

R11

16:00-17:15

Chair: Yuri V. MIKHLIN<https://zoom.us/j/96412270060>

16:00-16:15	CON 013	1	Krzysztof Sokół, Maciej Pierzgalski*	<i>Vibrations of an active rocker – bogie suspension under motion in rough terrain</i>
16:15-16:30	CON 049	2	Wojciech Paszkowiak*, Marcin Pelic, Tomasz Bartkowiak	<i>Neural network modelling for steering control of an automated guided logistic train</i>
16:30-16:45	CON 351	3	Valery N. Pilipchuk, Krystian Polczyński, Maksymilian Bednarek*, Jan Awrejcewicz	<i>Energy flow control in a system of coupled pendulums using magnetic field</i>
16:45-17:00	CON 239	4	Ounis Hadj Mohamed*, Abdeddaim Mahdi, Ounis Abdelhafid	<i>Design approach for isolated buildings in adequacy with algerian regulations and their comparison with several international codes</i>
17:00-17:15	CON 159	5	Ruben Capeans, Gaspar Alfaro, Miguel A. F. Sanjuan*	<i>Partial control and beyond: forcing escapes and controlling chaotic transients with the safety function</i>

R12

16:00-17:15

Chair: Olga S. MAZUR<https://zoom.us/j/95107236355>

16:00-16:15	MAT 200	1	Jan Awrejcewicz, Olga Mazur*	<i>Geometrically nonlinear vibrations of double-layered nanoplates</i>
16:15-16:30	MAT 110	2	Patricia Santana Reyes*, Emmanuel Pagnacco, Rubens Sampaio	<i>Taking into account uncertainties in non-linear dynamical systems with nonlinear energy sinks (NES)</i>
16:30-16:45	MAT 112	3	Oscar Sanchez Jimenez*, Emmanuel Pagnacco, Eduardo Souza De Cursi, Rubens Sampaio	<i>Study of the stochastic response of an offshore pile to a combined Mori son force induced by current and turbulence</i>
16:45-17:00	MAT 113	4	Dariusz Żardecki*	<i>Non-smooth models of wheel-road interactions based on piecewise-linear $luz(\dots)$ and $tar(\dots)$ projections</i>
17:00-17:15	MAT 209	5	Jacek Leszczyński	<i>Sensitivity analysis of granular dynamics by the use of unique DEM</i>

2. Tuesday, December 7, 2021

K3. Keynote lecture, 9:00 - 9:50

<https://zoom.us/j/99058525990>

Keynote speaker:

Mohammad I. YOUNIS

Dynamic-based micro and nano devices and phenomena

Chair:

Wiesław STASZEWSKI

Coffee break, 9:50 - 10:00

S3a

10:00-11:30

Chair: **Marat Z. DOSAYEV and Yury D. SELYUTSKIY**

<https://zoom.us/j/95135086694>

10:00-10:15	ASY 022	1	Mikhail Garbuz, Liubov Klimina*, Vitaly Samsonov	<i>Wind powered plantigrade machine moving against a flow</i>
10:15-10:30	ASY 228	2	Alexander Koshelev, Eugene Kugushev, Tatiana Shahova*	<i>Dynamics of a low-inertia ball located between two rotating planes with viscous friction</i>
10:30-10:45	CON 115	3	Marat Dosaev	<i>Control algorithm of a vibrating robot with a flywheel and unbalance with limited angular acceleration</i>
10:45-11:00	CON 306	4	Alexander Yu. Aleksandrov, Alexey A.Tikhonov*	<i>On the attitude stabilization of artificial Earth satellite in the natural electromagnetic coordinate system</i>
11:00-11:15	CON 329	5	Alexander Yu. Aleksandrov, Alexey A.Tikhonov *	<i>On the triaxial electrodynamic attitude stabilization of a satellite in the orbital frame via control with distributed delay</i>
11:15-11:30	BIF 377	6	Andrey V. Tsudik, Oleg V. Dubrovsky*, Valentin B. Ternovsky, Vasily V. Buyadzhi, Igor I. Bilan	<i>Chaos and bifurcations in a nonlinear dynamics of chain of the backward-wave tubes: numerical analysis</i>

R13

10:00-11:30

Chair: **Rustyam AKHMETOV and Roman STAROSTA**

<https://zoom.us/j/99163134381>

10:00-10:15	ASY 143	1	Rustyam Akhmetov	<i>The asymptotic solutions of the boundary value problem of convective diffusion around drops with volumetric nonlinear chemical reaction</i>
10:15-10:30	ASY 139	2	Yulia Danik, Mikhail Dmitriev*	<i>Algorithm for suboptimal feedback construction based on Padé approximation for nonlinear control problems</i>
10:30-10:45	ASY 352	3	Jan Awrejcewicz, Roman Starosta*, Grażyna Sypniewska-Kamińska	<i>Vibration of the system with nonlinear springs connected in series</i>
10:45-11:00	ASY 273	4	M.K. Abohamer*, J. Awrejcewicz, R. Starosta, T.S. Amer, M.A. Bek	<i>Modelling and analysing of a spring pendulum motion in the presence of energy harvesting devices</i>
11:00-11:15	ASY 247	5	D. Paul*, K. R. Jayaprakash	<i>Nonlinear oscillations of a elastica between cylindrical boundaries</i>
11:15-11:30	NUM 299	6	Hao Bai*, Lujie Shi, Changwu Huang, Didier Lemosse	<i>A neural network based surrogate model for assessing vibration induced fatigue damage on wind turbine tower</i>

R14

10:00-11:30

Chair: Igor ANANIEVSKI<https://zoom.us/j/91558165659>

10:00-10:15	CON 203	1	Igor Ananievski	<i>Damping of vibrations of an elastic beam by means of an active dynamic damper in the presence of disturbances</i>
10:15-10:30	CON 059	2	Krzysztof Kuliński*, Jacek Przybylski	<i>Nonlinear vibrations of a sandwich piezo-beam system under piezoelectric actuation</i>
10:30-10:45	CON 244	3	I. S. Mamaev*, Yu. L. Karavaev, V. A. Shestakov	<i>Analysis of non-slipping conditions for Omni wheels based on investigations of the dynamics of a highly maneuverable mobile robot</i>
10:45-11:00	CON 308	4	Vinod V.*, Bipin Balaram	<i>Strategies for amplitude control in a ring of self-excited oscillators</i>
11:00-11:15	CON 330	5	Fideliu Paulet-Crainiceanu*, Vitalie Florea, Septimiu George Luca, Cristian Pastia, Octavian Victor Rosca	<i>Analysis of practical application aspects for an active control strategy to civil engineering structures</i>
11:15-11:30	CON 054	6	Ke Ye, Jinhui Jiang*	<i>Experimental research on active vibration control of elastic plate and damage degradation of actuator</i>

R15

10:00-11:30

Chair: Utz von WAGNER<https://zoom.us/j/96899334661>

10:00-10:15	BIF 065	1	Minh-Tuan Nguyen-Thai*, Paul Wulff, Nils Gräbner, Utz Von Wagner	<i>On the dynamics of a 2-DOF nonlinear vibratory system with bistable characteristic and circulatory forces</i>
10:15-10:30	BIF 198	2	Grzegorz Kudra, Krzysztof Witkowski, Soumyajit Seth*, Krystian Polczyński, Jan Awrejcewicz	<i>Parametric vibrations of a system of oscillators connected with periodically variable stiffness</i>
10:30-10:45	BIF 195	3	Maaita Jamal-Odyseas*, Prousalis Dimitris, Volos Christos, Meletlidou Efthymia	<i>The dynamics of two coupled oscillators with the same damping term</i>
10:45-11:00	BIF 183	4	Eren Tosyali*, Fatma Aydogmus	<i>Chaos in Thirring model</i>
11:00-11:15	BIF 082	5	Nikolai Magnitskii	<i>Dynamical chaos in Hamiltonian systems with three degrees of freedom</i>
11:15-11:30	BIF 227	6	Alexander Ruchkin, Constantin Ruchkin*	<i>Method of adaptive bacterial foraging optimization for detection and locating periodic and multi-periodic orbits</i>

Coffee break, 11:30 - 11:45

S3b

11:45-13:15

Chair: Marat Z. DOSAYEV and Yury D. SELYUTSKIY<https://zoom.us/j/95135086694>

11:45-12:00	ENG 093	1	Ivan Shatskiy*, Vasyil Perepichka	<i>Shock torsion wave in an elastic rod with decreasing function of viscoplastic external friction</i>
12:00-12:15	ENG 094	2	Ivan Shatskiy*, Mykola Makoviichuk, Maksym Vaskovskyi	<i>Transversal straining of pressurized pipeline caused by vibration of damaged foundation</i>
12:15-12:30	ENG 107	3	Marat Dosaev*, Vitaly Samsonov	<i>Sliding of tabouret with elastic legs on a rough surface under the action of a small lateral force</i>
12:30-12:45	EXP 080	4	Shyh-Shin Hwang*, Hai-Mei Li, Xing-Yuan Chen	<i>Study on the property of microcellular injection molded HDPE/wheat straw composites</i>
12:45-13:00	LIF 106	5	Ivan Alpatov*, Marat Dosaev, Vitaly Samsonov, Ekaterina Vorobyeva, Vadim Dubrov	<i>An elastic rib modelling</i>
13:00-13:15				

R16

11:45-13:15

Chair: Eligiusz POSTEK<https://zoom.us/j/99163134381>

11:45-12:00	EXP 236	1	Václav Houdek*, Zdeněk Kubín, Luboš Smolík	<i>Impact point localization with the use of wavelet transform</i>
12:00-12:15	EXP 295	2	Jean-Emmanuel Chambe*, Miguel Charlotte, Yves Gourinat	<i>Vibration analysis of a fully- and partially-filled container – application to cryogenic tank characterization and dynamic behavior</i>
12:15-12:30	EXP 296	3	Lujie Shi*, Hao Bai, Leila Khalij	<i>Uncertainty evaluation by the bootstrap for the staircase fatigue limit test data</i>
12:30-12:45	EXP 268	4	Eligiusz Postek*, Tomasz Sadowski	<i>Compressive impact of SiC foam</i>
12:45-13:00	EXP 219	5	Jussara Dias*, Elbert Macau	<i>A new index for topological vulnerability in power transmission net works</i>
13:00-13:15	EXP 277	6	Artur Borowiec*, Daniel Szynal, Łukasz Szyszka	<i>Measurement of dynamic parameters of composite columns</i>

R17

11:45-13:15

Chair: Dariusz ŻARDECKI<https://zoom.us/j/91558165659>

11:45-12:00	CON 041	1	Marcell Ákos Bartos*, Giuseppe Habib	<i>Hybrid vibration absorber for self-induced vibration mitigation</i>
12:00-12:15	CON 105	2	Mirosław Gidlewski, Leszek Jemioł, Dariusz Żardecki*	<i>Modeling and simulation of the automated lane change process, taking into account freeplay and friction in the vehicle steering system</i>
12:15-12:30	CON 098	3	Mirosław Gidlewski, Leszek Jemioł, Dariusz Żardecki*	<i>Model based investigations of an integrated control system for automatic lane change in critical conditions</i>
12:30-12:45	CON 160	4	Cezary Graczykowski*, Rami Faraj	<i>Predictive control of semi-active fluid-based dampers under impact excitation</i>
12:45-13:00	CON 156	5	David Angulo-García*, Fabiola Angulo	<i>Control of microrgrid synchronization based on feedback control and optimization techniques</i>
13:00-13:15	CON 136	6	Leon Prochowski, Patryk Sz wajkowski*, Mateusz Ziubiński	<i>Can the prognosis of the results of the crash be the basis to steering the autonomic vehicle with the trailer in the critical situation?</i>

R18

11:45-13:15

Chair: Vasyl MARTSENYUK<https://zoom.us/j/96899334661>

11:45-12:00	BIF 075	1	Vasyl Martsenyuk*, Krzysztof Augustynek, Andrzej Urbaś	<i>On qualitative analysis of the model of two-link manipulator with time delays: stability, bifurcation and transition to chaos</i>
12:00-12:15	BIF 034	2	Sergii Skurativskiy, Grzegorz Kudra*, Krzysztof Witkowski, Grzegorz Wasilewski, Jan Awrejcewicz	<i>Nonlinear dynamics of forced oscillator subjected to a magnetic interaction</i>
12:15-12:30	BIF 079	3	Zeljko Stojanovic*, Denis Pelin	<i>Increase in current stresses of the boost converter due to border collision bifurcation</i>
12:30-12:45	BIF 311	4	Sergio Elaskar, Ezequiel Del Río*, Walkiria Schulz	<i>Evaluation of the reinjection process in type V intermittency</i>
12:45-13:00	MAT 301	5	Umaaran Gogilan*, Atta Oveisi, Tamara Nestorović	<i>Implementation of state observer-based conditioned reverse path method to the identification of a nonlinear system</i>
13:00-13:15	BIF 109	6	Ewelina Ogińska*, Dariusz Grzelczyk, Jan Awrejcewicz	<i>Research of the dynamics of a physical pendulum forced with an elec tromagnetic field</i>

Coffee break, 11:30 - 11:45

S3c

13:30-14:45

Chair: Marat Z. DOSAYEV and Yury D. SELYUTSKIY<https://zoom.us/j/95135086694>

13:30-13:45	MTR 035	1	Sergey Golovanov, Liubov Klimina*, Marat Dosaev, Yury Selyutskiy	<i>Underwater capsbot controlled by motion of a single internal flywheel</i>
13:45-14:00	OPT 030	2	Nina Smirnova, Egor Malykh, Oleg Cherkasov*	<i>Brachistochrone problem with variable mass</i>
14:00-14:15	OPT 031	3	Nina Smirnova, Egor Malykh, Oleg Cherkasov*	<i>Zermelo navigation problem with state constraints</i>
14:15-14:30	OPT 042	4	Ching-Huei Lin*, Jen-Hung Lo, Marat Dosaev, Yury Selyutskiy	<i>Optimized spacing design for paired counter-rotating Savonius rotors</i>
14:30-14:45	STA 032	5	Yury Selyutskiy	<i>Dynamics of a 2 DoF galloping-based wind power harvester</i>

R19

13:30-14:45

Chair: Wojciech RDZANEK<https://zoom.us/j/99163134381>

13:30-13:45	MAT 123	1	Wojciech Rdzaneek	<i>The effect of a shaker on the resonance frequencies of a circular plate</i>
13:45-14:00	MAT 211	2	Rafał Radecki*, Aleksandra Ziaja-Sujdak, Mariusz Osika, Wiesław J. Staszewski	<i>Numerical and theoretical investigations of modulation transfer due to nonlinear shear wave interaction at frictional interfaces</i>
14:00-14:15	MAT 212	3	Mariusz Osika*, Rafał Radecki, Aleksandra Ziaja-Sujdak, Wiesław J. Staszewski	<i>An insight into amplitude-dependend modulation transfer due to nonlinear shear wave interaction with contact interfaces</i>
14:15-14:30	MAT 144	4	Andrzej Urbaś*, Krzysztof Augustynek, Vasyl Martsenyuk	<i>The influence of the load modeling methods on dynamics of a mobile crane</i>
14:30-14:45	MAT 150	5	Krzysztof Augustynek*, Andrzej Urbaś, Vasyl Martsenyuk	<i>Dynamics analysis of the spatial mechanism with imperfections in the fifth-class kinematic pairs</i>

R20

13:30-14:45

Chair: Jacek PRZYBYLSKI<https://zoom.us/j/91558165659>

13:30-13:45	VIB 116	1	Jacek Przybylski	<i>Control of deformation and transversal vibrations of a clamped beam by two discretely attached monolithic piezoelectric rods</i>
13:45-14:00	VIB 322	2	Lelya Khajiyeva, Askar Kudaibergenov, Yuliya Sabirova*	<i>Application of the lumped-parameter method for modelling nonlinear vibrations of drill strings with complicating factors</i>
14:00-14:15	VIB 175	3	Simona Doneva*, Jerzy Warmiński, Emil Manoach	<i>Analytical and finite element models of nonlinear dynamic behaviour of bi-material beam</i>
14:15-14:30	VIB 001	4	Paweł Olejnik*, Adrian Górniak vel Górski, Maciej Cebulak, Jan Awrejcewicz	<i>Influence of a relatively high frequency structure vibrations on the dynamics of real stick-slip motion</i>
14:30-14:45	LIF 336	5	Katica (Stevanović) Hedrih, Andjelka Hedrih*	<i>Nonlinear oscillations of a complex discrete system of rigid rods with mass particles on an elastic cantilever</i>

R21 13:30-14:45 Chair: Tomasz SADOWSKI https://zoom.us/j/96899334661				
13:30-13:45	STA 161	1	Yury Selyutskiy*, Andrei Holub, Ching-Huei Lin	<i>Dynamics of a multiple-link aerodynamic pendulum</i>
13:45-14:00	STA 185	2	Eren Tosyali*, Fatma Aydogmus	<i>Dynamical study of bec with external trapping potential under noise</i>
14:00-14:15	STA 047	3	Ádám Horváth*, Péter Béda	<i>On the stability of a slip controlled two-axle vehicle with multiple time delays</i>
14:15-14:30	STA 060	4	Peter B. Béda*	<i>On fractional viscosity and material instability</i>
14:30-14:45	STA 162	5	Volodymyr Puzyrov*, Jan Awrejcewicz, Nataliya Losyeva, Nina Savchenko**, Oksana Nikolaieva	<i>Estimation the domain of attraction for a system of two coupled oscillators with weak damping</i>
Coffee break, 14:45 - 15:00				
K4. Keynote lecture, 15:00 - 15:50 https://zoom.us/j/99261768005				
<i>Keynote speaker:</i>	Ravi P. AGARWAL		<i>Are we prepared to accept the reality?</i>	
<i>Chair:</i>	Giuseppe REGA			
Coffee break, 15:50 - 16:00				
S2b 16:00-17:15 Chair: José BALTHAZAR, Elżbieta JARZĘBOWSKA and Angelo TUSSET https://zoom.us/j/95135086694				
16:00-16:15	EXP 206	1	Ingrid Pires*, Helon Vicente Hultmann Ayala, Hans Ingo Weber	<i>Nonlinear system identification of an experimental drill-string setup</i>
16:15-16:30	MAT 037	2	Michelle F. Westin*, Roberto G. A. da Silva, José M. Balthazar	<i>Some comments on nonlinear aeroelastic typical section</i>
16:30-16:45	CON 331	3	Jorge A. Ricardo Jr.*, Davi A. Santos	<i>Super-twisting sliding mode control for a formation of fully-actuated multirotor aerial vehicles</i>
16:45-17:00	CON 335	4	Jacek Jackiewicz	<i>Energy recovery hybrid system with the flywheel</i>
17:00-17:15				

R22

16:00-17:15

Chair: James F. WHIDBORNE<https://zoom.us/j/99163134381>

16:00-16:15	MAT 152	1	Oleksandr Nakonechnyi, Vasyl Martsenyuk*, Aleksandra Klos-Witkowska, Iuliia Shevchuk	<i>On minimax parameter estimation of nonlinear dynamic Brown's model for enzyme-substrate interaction with distributed delay</i>
16:15-16:30	ASY 131	2	Yuri V. Mikhlin*, Yuliia E. Surganova	<i>Nonlinear normal modes and localization of vibrations in the pendulum system under magnetic excitation</i>
16:30-16:45	NUM 169	3	Dániel Serfözö*, Balázs Pere	<i>Numerical investigation of dynamic contact problems using finite element method</i>
16:45-17:00	NUM 081	4	Mehmet Selim Akay*, Alexander D. Shaw, Michael I. Friswell	<i>Continuation analysis of overhung rotor bouncing cycles with smooth and contact nonlinearities</i>
17:00-17:15	NUM 257	5	Artur Borowiec	<i>Localization of changes in stiffness in numerical models of beams using additional masses</i>

R23

16:00-17:15

Chair: Jerzy WICIAK<https://zoom.us/j/91558165659>

16:00-16:15	VIB 186	1	Jan Freundlich*, Danuta Sado	<i>Analytical investigation of a mechanical system containing a spherical pendulum and a fractional damper</i>
16:15-16:30	VIB 302	2	Jan Freundlich*, Danuta Sado	<i>The effect of damping on the energy transfer in the spherical pendulum with fractional damping in a pivot point</i>
16:30-16:45	VIB 264	3	Filip Sarbinowski*, Roman Starosta	<i>Determination of peak efficiency of galloping energy harvesters with various stiffness characteristics</i>
16:45-17:00	VIB 127	4	Jerzy Wiciak*, Roman Trojanowski, Karol Listewnik	<i>Numerical calculations of target strength for large scale BeTSSi models</i>
17:00-17:15	VIB 290	5	Amal Z. Hajja*, Feras Alfosail, Stephanos Theodossiades	<i>Combined internal resonances of slacked micromachined resonators</i>

R24

16:00-17:15

Chair: Urszula FORYŚ<https://zoom.us/j/96899334661>

16:00-16:15	STA 092	1	Peter Giesl, Sigurdur Freyr Hafstein*	<i>Lyapunov functions by interpolating numerical quadratures: proof of convergence</i>
16:15-16:30	STA 057	2	Sony Chindada*, Pavel Šnábl, Pavel Prochazka, Chandra Shekhar Prasad, Ludek Pešek	<i>Numerical modelling of the experimental based high frequency subsonic stall flutter in linear blade cascade</i>
16:30-16:45	STA 350	3	Hamza Mughal*, Nader Dolatabadi, Ramin Rahmani	<i>Effect of gear mesh stiffness and lubricant nonlinearities on the dynamic response of gear transmission</i>
16:45-17:00	STA 062	4	Dawid Cekus, Paweł Kwiatkoń*	<i>Stability analysis of mobile crane during load sway induced by wind</i>
17:00-17:15	STA 369	5	Anna V. Ignatenko, Valentin B. Ternovsky*, Andrey A. Svinarenko, Yuliya V. Dubrovskaya	<i>Nonlinear dynamics of molecular systems in an external electromagnetic field: classical and quantum treatment of chaos and strange attractors</i>

3. Wednesday, December 8, 2021

K5. Keynote lecture, 9:00 - 9:50

<https://zoom.us/j/95402105877>

Keynote speaker:	Erasmó CARRERA* , Marco Petrolo	<i>Accuracy and efficiency of structural theories for free vibration analyses via axiomatic/asymptotic method and neural networks</i>
Chair:	Stefan KACZMARCZYK	

Coffee break, 9:50 - 10:00

S1

10:00-11:30

Chair: **Cristina MURESAN and Carla PINTO**

<https://zoom.us/j/96237599993>

10:00-10:15	CON 158	1	Magdalena Sangeorzan, Eva-H. Dulf*	<i>Fractional order controllers for twin rotor aerodynamical system</i>
10:15-10:30	CON 164	2	Marcian Mihai*, Isabela Birs, Cristina I. Muresan, Eva Dulf , Robin De Keyser	<i>Comparisons and experimental validation of several autotuning methods for fractional order controllers</i>
10:30-10:45	CON 222	3	Iulia Bunescu, Isabela Birs, Robain De Keyser, Cristina I. Muresan*	<i>A novel toolbox for automatic design of fractional order pi controllers based on automatic system identification from step response data</i>
10:45-11:00	ENG 272	4	Azhar Ali Zafar*, Jan Awrejcewicz	<i>Influence of fractional order parameter on the dynamics of different vibrating systems</i>
11:00-11:15	CON 379	5	Juan J. Gude*, Pablo García Bringas	<i>Proposal of a control hardware architecture for implementation of fractional-order controllers</i>
11:15-11:30	EXP 151	6	Alexandru-George Berciu*, Eva Henrietta Dulf, Dacian Jurj, Levente Czumbil, Dan Doru Micu	<i>Energy pulse: competitive and accessible application for monitoring electricity consumption</i>

R25

10:00-11:30

Chair: Virgil-Florin DUMA<https://zoom.us/j/99156783584>

10:00-10:15	OPT 074	1	Virgil-Florin Duma	<i>Laser scanners with rotational polygon mirrors: a multi-parameter optomechanical analysis and optimization</i>
10:15-10:30	OPT 006	2	Oleg Cherkasov*, Elina Makieva, Egor Malykh	<i>About the target-attacker-defender optimal problem</i>
10:30-10:45	OPT 007	3	Oleg Cherkasov, Nina Smirnova*	<i>Brachistochrone problem with state constraints of a certain type</i>
10:45-11:00	OPT 324	4	Premchand V.P.*, Bipin Balaram, Ajith K. Mani, Sajith A.S., M.D. Narayanan	<i>Design of a vibration absorber system for tremor reduction in Parkinson patients using a cluster based algorithm</i>
11:00-11:15	OPT 283	5	Xiaoyi Chen*, Erick Pruchnicki, Hui Hui Dai, Xiang Yu	<i>A uniform framework for the dynamic behavior of linearized anisotropic elastic rods</i>
11:15-11:30	OPT 300	6	Changwu Huang, Hao Bai*, Lujie Shi, Younes Aoues	<i>Optimization of wind turbine tower using adaptive algorithm configuration</i>

R26

10:00-11:30

Chair: Paweł OLEJNIK<https://zoom.us/j/94354093375>

10:00-10:15	EXP 055	1	Naoto Nishiyama*, Kiyotaka Yamashita	<i>Simple suppression method of impact oscillations between a panto graph and an overhead rigid conductor line</i>
10:15-10:30	EXP 168	2	Anna Jaskot*, Bogdan Posiadala	<i>Modelling of motion and experimental studies of a four-wheeled mobile robot considering slip occurrence</i>
10:30-10:45	EXP 332	3	Kemal Arslan*, Recep Gunes	<i>Evaluation of stress wave propagation in particle-reinforced metal matrix composites</i>
10:45-11:00	EXP 117	4	Jakub Augustyniak*, Dariusz M. Perkowski*, Izabela Zglobicka	<i>Gas bubble trajectory in nanofluid</i>
11:00-11:15	EXP 353	5	Paweł Adamski*, Paweł Olejnik	<i>Drive-by-wire of a converted into electric car Syrena 105 enabling Hardware-In-Loop tests of driving</i>
11:15-11:30	EXP 339	6	Witold Luty, Tomasz Pusty*	<i>Analysis of dynamic characteristics of vehicle steerability in the context of its diagnostics and evaluation of dynamic properties</i>

Coffee break, 11:30 - 11:45

S5a

11:45-13:15

Chair: Viktor AVRUTIN and Gerard OLIVAR TOST<https://zoom.us/j/96237599993>

11:45-12:00	NON 130	1	Mike Jeffrey*, Viktor Avrutin	<i>Hidden dynamics of maps (and when "period 2 implies chaos")</i>
12:00-12:15	NON 133	2	Zhanybai T. Zhusubaliyev*, Viktor Avrutin, Frank Bastian	<i>On transformations of closed invariant curves in piecewise-smooth maps</i>
12:15-12:30	NON 250	3	Marina Esteban*, Emilio Freire, Enrique Ponce, Francisco Torres	<i>Piecewise smooth systems with a pseudo-focus: a normal form approach</i>
12:30-12:45	NON 154	4	Anderson Fabian Abella, José D. Morcillo*, Fabiola Angulo	<i>Control of bubbling phenomenon in bipolar SPWM inverters</i>
12:45-13:00	BIF 170	5	Viktor Avrutin, Frank Bastian*, Lasse von Schwerin-Blume, Zhanybai T. Zhusubaliyev, Abdelali El Aroudi	<i>A geometric approach to bifurcation- and noise-induced bubbling</i>
13:00-13:15	BIF 288	6	Carlos M. Escobar-Callejas, Gerard Olivar-Tost*	<i>Zip bifurcation in PWSC systems</i>

R27

11:45-13:15

Chair: Igor V. ANDRIANOV<https://zoom.us/j/99156783584>

11:45-12:00	MAT 265	1	I.V. Andrianov*, J. Awrejcewicz, G.A. Starushenko, S.A. Kvitka	<i>Thermal waves in composite membrane with circular inclusions in hexagonal lattice structures</i>
12:00-12:15	MAT 163	2	Alexander Kilin, Elena Pivovarova*	<i>Dynamics of the Chaplygin sphere on a moving plane</i>
12:15-12:30	MAT 357	3	Nikolaos Ntaoulas, Vasileios Drakopoulos*	<i>Fractal techniques associated with steganography</i>
12:30-12:45	MAT 356	4	Xiaoqing Han*, Emmanuel Pagnacco	<i>The response of nonlinear dynamic systems via Wavelet-Galerkin method in the time-frequency domain</i>
12:45-13:00	MAT 178	5	Viktor Strelbitskiy, Stanisław Rajba, Nataliia Punchenko, Nadiia Kazakova, Rafał Szklarczyk, Ruslana Ziubina	<i>Development of a mathematical model for the functioning of a river port discharge point</i>
13:00-13:15	MAT 235	6	Natalya Kizilova*, Natalya Rychak	<i>Optimal strategies for water management and self-restoration of the ecosystems: nonlinear dynamics, stability and controllability</i>

R28

11:45-13:15

Chair: Sigurdur Freyr HAFSTEIN<https://zoom.us/j/94354093375>

11:45-12:00	EXP 199	1	Virgil-Florin Duma*, Gheorghe Hutiu, Alexandru-Lucian Dimb, Dorin Demian, Adrian Bradu, Adrian Podoleanu	<i>Roughness evaluations for metallic parts using optical coherence tomography (OCT)</i>
12:00-12:15	EXP 180	2	Julia Milewicz*, Tomasz Nowakowski, Grzegorz M. Szymański	<i>Determination of dynamic parameters of parts of a tram wheel in a numerical and experimental modal analysis</i>
12:15-12:30	EXP 360	3	Daniel Mokrzan*, Tomasz Nowakowski, Grzegorz M. Szymański	<i>The application of time-frequency methods of acoustic signal processing in the diagnostics of tram drive components</i>
12:30-12:45	EXP 309	4	Mirosław Gidlewski, Leon Prochowski, Leszek Jemioł, Mateusz Ziubiński*	<i>The course of the process of a motor car frontal impact against various places of the second vehicle's body side an</i>
12:45-13:00	EXP 338	5	Mirosław Gidlewski, Tomasz Pusty*, Leszek Jemioł, Hanna Kochanek	<i>Determination of physical quantities describing the movement of objects involved in a frontal-side collision of vehicles</i>
13:00-13:15	LIF 362	6	Alexander V. Glushkov*, Olga Y. Khetselius, Sergiy M. Stepanenko, Andrey A. Svinarenko, Anna V. Ignatenko	<i>Chaos in environmental radioactivity dynamics of some geosystems: analyses of the radon time series</i>

Coffee break, 11:30 - 11:45

S5b

13:30-14:45

Chair: Viktor AVRUTIN and Gerard OLIVAR TOST<https://zoom.us/j/96237599993>

13:30-13:45	NON 177	1	Jorge A. Amador*, Johan Manuel Redondo, Gerard Olivar, Christian Erazo	<i>Effects of the resources transfer between communities under a policy of responsibility in the framework of sustainability</i>
13:45-14:00	NON 138	2	Viktor Avrutin, Arianna Dal Forno*, Ugo Merlone	<i>Codimension-2 bifurcations in a quantum decision making model</i>
14:00-14:15	MAT 145	3	Josefina Antonijuan, Imma Massana , Gerard Olivar-Tost, Joana Prat, Enric Trullols*	<i>Bifurcations in piecewise-smooth systems associated to migration</i>
14:15-14:30	BIF 251	4	José D. Morcillo*, Juan-Guillermo Muñoz, Gerard Olivar-Tost	<i>Non-smooth dynamics in ramp-controlled and sine-controlled buck converters</i>
14:30-14:45	NON 132	5	Viktor Avrutin*, Anastasiia Panchuk, Iryna Sushko	<i>Border collision bifurcations of chaotic attractors</i>

R29

13:30-14:45

Chair: Paweł OLEJNIK<https://zoom.us/j/99156783584>

13:30-13:45	MAT 316	1	Godiya Yakubu*, Paweł Olejnik, Jan Awrejcewicz	<i>Mathematical modelling of an extended swinging Atwood machine</i>
13:45-14:00	MAT 086	2	Renata Modzelewska*, Agata Krasieńska, Anna Wawrzaszek, Agnieszka Gil	<i>Scaling features of cosmic rays, solar, heliospheric and geomagnetic data</i>
14:00-14:15	MAT 328	3	Maciej Wnuk*, Artur Iluk	<i>Estimation of resonance frequencies for systems with contact using linear dynamics methods</i>
14:15-14:30	MAT 371	4	Sergey V. Kir'yanov, Eugeny V. Ternovsky*, Dmitry A. Novak, Igor I. Bilan	<i>Nonlinear chaotic dynamics of laser diodes with an additional optical injection: dynamical and topological invariants</i>
14:30-14:45	MAT 312	5	Adam Zsiros*, Zsombor Ligeti	<i>Dynamics of an economic growth model with new stylized facts</i>

R30

13:30-14:45

Chair: Wiesław FIEBIG<https://zoom.us/j/94354093375>

13:30-13:45	VIB 095	1	Marcela R. Machado*, Maciej Dutkiewicz	<i>Spectral analysis of chimney vibrations</i>
13:45-14:00	VIB 048	2	Marcela R. Machado*, Maciej Dutkiewicz	<i>Broadband vibration of a beam under tensile load</i>
14:00-14:15	VIB 036	3	Juliana C. Santos, Marcela R. Machado*, Lamiae Vernieres-Hassimi, Leila Khalij	<i>Vibration characterisation of a tubular chemical reactor</i>
14:15-14:30	VIB 058	4	Rafał Rusinek, Robert Zablotni*	<i>Relaxation effect in implanted human middle ear</i>
14:30-14:45	VIB 165	5	Volodymyr Puzyrov*, Jan Awrejcewicz, Nataliya Losyeva	<i>Dynamics of energy harvesting mechanical system in the vicinity of 1:1 resonance</i>

Coffee break, 14:45 - 15:00

K6. Keynote lecture, 15:00 - 15:50

<https://zoom.us/j/95196205004>

<i>Keynote speaker:</i>	James A. YORKE	<i>The nature of solutions of equations</i>
<i>Chair:</i>	Celso GREBOGI	

Coffee break, 15:50 - 16:00

S2c

16:00-17:15

Chair: José BALTHAZAR, Elżbieta JARZĘBOWSKA and Angelo TUSSET

<https://zoom.us/j/96237599993>

16:00-16:15	MAT 167	1	Stefano Lenci	<i>Waves in a beam resting on a bilinear Winkler foundation</i>
16:15-16:30	CON 233	2	João Francisco Silva Trentin*, Davi Antônio dos Santos	<i>Global sliding mode control design for a 3D pendulum</i>
16:30-16:45	VIB 147	3	Stefan Kaczmarczyk	<i>Nonlinear dynamics and control of moving slender continua subject to periodic excitations</i>
16:45-17:00	ENG 043	4	Asghar Faramarzi Babadi*, Yaghoub Tadi Beni, Krzysztof Kamil Żur*	<i>On the flexoelectric effect on nonlinear vibration of three-layered functionally graded cylindrical microshells</i>
17:00-17:15	ENG 070	5	R.H. Avançaço*, D. A. Zanella, R. De Jesus A. Cantillo, A. Cunha Jr., J. M. Balthazar, A. M. Tusset	<i>Discussion on the influence of the inductance in the nonlinear dynamics of DC motors in coupled systems</i>

R31

16:00-17:15

Chair: Klaus ZIMMERMANN

<https://zoom.us/j/99156783584>

16:00-16:15	ASY 066	1	Klaus Zimmermann, Igor Zeidis, Simon Gast*, Nina Prem, Stefan Odenbach, Kare Gowda	<i>An approach to the modeling and simulation of multi-layered and multi-stimulable material for application in soft robots</i>
16:15-16:30	ASY 376	2	Alessandro Fortunati*, Andrea Bacigalupo, Marco Lepidi, Andrea Arena, Walter Lacarbonara	<i>Nonlinear wave propagation in one-dimensional metamaterials via Hamiltonian perturbation scheme</i>
16:30-16:45	ASY 182	3	Robert Salamon*, Grażyna Sypniewska-Kamińska, Henryk Kamiński	<i>Application of multiple scales method to the problem of plane pendulum motion with extended damping model</i>
16:45-17:00	ASY 249	4	Grażyna Sypniewska-Kamińska*, Jan Awrejcewicz	<i>Identification of the model parameters based on the ambiguous branches of resonance response curves</i>
17:00-17:15	ASY 024	5	C. Da Silveira Zanin*, A. Ture Savadkoohi, S. Baguet, R. Dufour	<i>Energy exchanges in a nonlinear meta-cell</i>

R32

16:00-17:15

Chair: Matthias KLAERNER

<https://zoom.us/j/94354093375>

16:00-16:15	OPT 087	1	Matthias Klaerner*, Steffen Marburg, Lothar Kroll	<i>Optimisation potentials of laminated composites using semi-analytical vibro-acoustic models</i>
16:15-16:30	OPT 114	2	Urszula Foryś*, Mariusz Bodzioch	<i>Competition between populations: preventing domination of resistant population using optimal control</i>
16:30-16:45	OPT 281	3	Bartosz Miller*, Leonard Ziemiański	<i>Optimisation and state identification of composite shell using Deep Neural Networks</i>
16:45-17:00	OPT 187	4	Łukasz Rówienicz*, Paweł Malczyk	<i>Parameter identification for a two-axis gimbal system and its kinematic calibration</i>
17:00-17:15	OPT 255	5	Wiesław Fiebig, Adam Dmochowski*	<i>Optimization of the two-mass oscillator regarding the accumulation of energy at mechanical resonance</i>

4. Thursday, December 9, 2021

K7. Keynote lecture, 9:00 - 9:50

<https://zoom.us/j/92359664495>

<i>Keynote speaker:</i>	Jerzy WARMIŃSKI* , Andrzej Mitura, Francesco Romeo, Matteo Brunetti	<i>Nonlinear dynamics of multi-stable systems</i>
<i>Chair:</i>	Carla PINTO	

Coffee break, 9:50 - 10:00

S4

10:00-11:30

Organizers: Giuseppe HABIB and Valeria SETTIMI

Chair: Mattia CENEDESE

<https://zoom.us/j/98053024158>

10:00-10:15	MAT 258	1	Mattia Cenedese*, Joar Axás, George Haller	<i>Data-driven reduced-order nonlinear models from spectral submanifolds</i>
10:15-10:30	NUM 246	2	Giuseppe Habib	<i>A novel iterative procedure for robustness assessment</i>
10:30-10:45	STA 197	3	Ábel Mihály Nagy*, Dóra Patkó, Ambrus Zelei	<i>Discovery and online interactive representation of the dimensionless parameter-space of the spring-loaded inverted pendulum model of legged locomotion using surface interpolation</i>
10:45-11:00	BIF 256	4	Valeria Settimi*, Giuseppe Rega	<i>Global dynamics of thermomechanically coupled plates</i>
11:00-11:15	STA 261	5	Kaio C. B. Benedetti*, Frederico M. A. Da Silva, Renata M. Soares, Paulo B. Gonçalves	<i>Dynamic integrity of hyperelastic spherical membranes</i>
11:15-11:30	BIF 011	6	Antonio Zippo*, Francesco Pellicano, Giovanni Iariccio	<i>Experiments of shells with non-newtonian fluid interaction</i>

R33

10:00-11:30

Chair: Larisa DZYUBAK<https://zoom.us/j/95395897096>

10:00-10:15	LIF 383	1	Larysa Dzyubak*, Oleksandr Dzyubak, Jan Awrejcewicz	<i>Conditions regulating tumor cell behaviour in biological systems with memory of states</i>
10:15-10:30	LIF 140	2	Rahil Valani*, Brendan Harding, Yvonne Stokes	<i>Bifurcations in inertial focusing of particles in curved rectangular ducts</i>
10:30-10:45	LIF 188	3	Agata Mrozek*, Tomasz Stręk	<i>Design of auxetic damper for lower limb prosthesis</i>
10:45-11:00	LIF 384	4	Vitaliy Pavlenko, Tetyana Shamanina, Vladyslav Chori*	<i>Nonlinear dynamic model of the oculo-motor system human based on the Volterra series</i>
11:00-11:15	LIF 204	5	Liliána Zajcsuk*, Ambrus Zelei	<i>Correlation of biomechanic performace measures with acceleration and deceleration in human overground running</i>
11:15-11:30	LIF 023	6	Dariusz Grzelczyk, Olga Jarzyna*, Jan Awrejcewicz	<i>Design and simulation of a lower limb exoskeleton with linear electric actuators</i>

R34

10:00-11:30

Chair: Julius KAPLUNOV<https://zoom.us/j/93664141374>

10:00-10:15	ASY 192	1	J. Kaplunov, D.A. Prikazchikov, L. Prikazchikova*	<i>Rayleigh-type waves in nonlocal elasticity</i>
10:15-10:30	NON 134	2	Pankaj Kumar*, S. Narayanan	<i>Nonlinear dynamics of dry friction oscillator subjected to combined harmonic and random excitation</i>
10:30-10:45	NON 323	3	Premchand V.P.*, Bipin Balam, Ajith K. Mani, Sajith A.S., M.D. Narayanan	<i>A new method to determine periodic solutions in discontinuous systems with application to mass on moving belt</i>
10:45-11:00	NON 317	4	Stanisław W. Biber*, Alan R. Champneys, Robert Szalai	<i>Non-smooth dynamics of a bouncing golf ball</i>
11:00-11:15	NON 119	5	Mate Antali	<i>Dynamics of railway wheelsets with a nonsmooth contact force model</i>
11:15-11:30	NON 307	6	Shubhanshu Maheshwari, Aravindan Muralidharan, Shaikh Faruque Ali, Grzegorz Litak*	<i>A vibro-impact oscillator based energy harvester</i>

Coffee break, 11:30 - 11:45

R35

11:45-13:15

Chair: Peter ODRY<https://zoom.us/j/98053024158>

11:45-12:00	MTR 097	1	Ákos Odry*, Istvan Kecskes*, Peter Odry	<i>Accuracy improvement of 3D position estimation of mobile robots based on IMU measurements and NNs</i>
12:00-12:15	MTR 173	2	Piotr Woś*, Ryszard Dindorf	<i>Hydraulic levelling control system technology of bricklaying robot</i>
12:15-12:30	MTR 221	3	Adam Martowicz*, Paweł Zdziebko, Jakub Roemer, Grzegorz Żywica, Paweł Bagiński	<i>Numerical and experimental characterization of the temperature profile in a gas foil bearing</i>
12:30-12:45	MTR 029	4	Ryszard Dindorf, Piotr Woś*	<i>Study of an electro-hydraulic servo actuator flexibly connected to a boom manipulator mounted on a jaw crusher</i>
12:45-13:00	MTR 229	5	Krzysztof J. Kaliński, Natalia Stawicka-Morawska*, Marek A. Galewski, Michał R. Mazur	<i>Using the Experiment-Aided Virtual Prototyping technique to predict the best clamping stiffness during milling of large-size details</i>
13:00-13:15	ASY 326	6	Pavel Udalov *, Ivan Popov, Alexei Lukin	<i>Estimation of the amplitudes of parametric oscillations of a hemispherical solid-wave gyroscope</i>

R36

11:45-13:15

Chair: Björn BIRNIR<https://zoom.us/j/95395897096>

11:45-12:00	LIF 262	1	Björn Birnir	<i>The probability of infection, through aerosol transmission, by SARS-CoV-2 coronavirus</i>
12:00-12:15	LIF 137	2	Leon Prochowski, Mateusz Ziubiński*, Krzysztof Dziewiecki, Patryk Szwajkowski	<i>Impact energy versus the hazards for the occupants during a front-to-side vehicles' collision</i>
12:15-12:30	LIF 349	3	Piotr Beldowski*, Piotr Weber, Adam Gadomski, Krzysztof Domino, Rohit Prasad	<i>Interaction of albumin with chondroitin sulphate IV and VI, a molecular docking study</i>
12:30-12:45	LIF 347	4	Piotr Weber*, Piotr Beldowski, Adam Gadomski, Krzysztof Domino, Damian Ledziński	<i>Interaction of mucin with glycosaminoglycans in water environment</i>
12:45-13:00	LIF 230	5	Natalya Kizilova	<i>Nonlinear dynamics, stability and control strategies: mathematical modeling on the big data analyses of COVID-19 in Poland</i>
13:00-13:15				

R37

11:45-13:15

Chair: Ambrus ZELEI<https://zoom.us/j/93664141374>

11:45-12:00	CON 237	1	Roland Zana*, Ambrus Zelei	<i>Experimental evaluation of an underactuated inverse dynamics control approach based on the method of Lagrange-multipliers</i>
12:00-12:15	CON 210	2	P. Schorr*, M. Ebnet, K. Zimmermann, V. Böhm	<i>Dynamic modeling of a rolling tensegrity structure with spatially curved members</i>
12:15-12:30	CON 061	3	Paweł Latosiński*, Andrzej Bartoszewicz	<i>Reference model trajectory tracking in continuous-time sliding mode control</i>
12:30-12:45	CON 214	4	Marcin Mirosław*, Jakub Deda, Tomasz Mirosław	<i>The modelling of emergency dynamic braking system of electric vehicle</i>
12:45-13:00	CON 215	5	Marcin Mirosław*, Jakub Deda, Tomasz Mirosław	<i>The modelling of autonomous control with hazard of measurement noise and errors</i>
13:00-13:15	CON 128	6	Dębowski Andrzej, Faryński Jakub, Żardecki Dariusz*	<i>Reference models of the 4WS vehicle lateral dynamics for the synthesis of steering algorithms</i>

Coffee break, 11:30 - 11:45

S2d

13:30-14:45

Chair: José BALTHAZAR, Elżbieta JARZĘBOWSKA and Angelo TUSSET<https://zoom.us/j/98053024158>

13:30-13:45	CON 050	1	Angelo M. Tuset*, Marcos Gonçalves, Calequela J. T. Manuel, José M. Balthazar, Giane G. Lenzi	<i>Passive vibration control of a high-speed elevator system</i>
13:45-14:00	CON 141	2	Elżbieta Jarzębowska*, Krzysztof Augustynek, Andrzej Urbaś	<i>Motion tracking of a rigid-flexible link manipulator in a controller failure condition</i>
14:00-14:15	CON 191	3	Marcin Kłak*, Elżbieta Jarzębowska	<i>Guidance and control system design for a free-flying space manipulator based on a dynamically equivalent manipulator</i>
14:15-14:30	CON 194	4	Maria Aline Gonçalves*, José M. Balthazar, Elżbieta Jarzębowska, Ângelo M. Tuset, Maurício A. Ribeiro, Hilson H. Daŭm	<i>On a nonlinear and non-ideally excited tank</i>
14:30-14:45	CON 231	5	José Agnelo Bezerra, João Francisco Silva Trentin,*, Davi Antônio dos Santos	<i>Global sliding mode control for a fully-actuated non-planar hexa-rotor aerial vehicle</i>

R38

13:30-14:45

Chair: Alexander PROKOPENYA<https://zoom.us/j/95395897096>

13:30-13:45	STA 018	1	Alexander Prokopenya	<i>On stability of periodic motion of the swinging atwood machine</i>
13:45-14:00	STA 284	2	Zacharias Kraus*, Artem Karev, Peter Hagedorn, Fadi Dohnal	<i>Enhancing vibration mitigation in a jeffcott rotor with active magnet bearings through parametric excitation</i>
14:00-14:15	STA 039	3	Biljana Tojtovska*, Pance Ribarski	<i>Coupled system of stochastic neural networks with impulses, Markovian switching, and node and connection delays</i>
14:15-14:30	STA 072	4	Pavel Snabl*, Ludek Pešek, Chandra Shekar Prasad	<i>Time-variable normal contact force influence on dry-friction damping of self-excited vibration of bladed turbine wheel</i>
14:30-14:45				

R39

13:30-14:45

Chair: Victor A. EREMEYEV<https://zoom.us/j/93664141374>

13:30-13:45	VIB 226	1	Victor A. Eremeyev	<i>On the surface anti-plane waves in media with initial surface stresses</i>
13:45-14:00	VIB 125	2	Huseyin Cetin, Baki Öztürk, Maciej Dutkiewicz* and Ersin Aydin	<i>Design of an optimum tuned mass damper for cantilever beam response reduction</i>
14:00-14:15	VIB 207	3	Vaibhav Tandel*, K.R. Jayaprakash	<i>Piecewise linear dynamics of a cracked beam with hysteretic damping</i>
14:15-14:30	VIB 208	4	Biswajit Bharat*, K.R. Jayaprakash	<i>Nonlocal effects on the dynamics of carbon nanotubes</i>
14:30-14:45	VIB 240	5	P. Naga Vishnu, Biswajit Bharat, K.R. Jayaprakash	<i>Dynamics of rotating cylindrical shell subjected to pressure loading</i>

Coffee break, 14:45 - 15:00

K8. Keynote lecture, 15:00 - 15:50

<https://zoom.us/j/99322625245>

<i>Keynote speaker:</i>	Weidong ZHU	<i>Dynamics of continuous systems: from time-varying, nonlinear, and flexible multibody systems to phononic structures</i>
<i>Chair:</i>	Stefano LENCI	

Coffee break, 15:50 - 16:00

S2e

16:00-17:00

Chair: José BALTHAZAR, Elżbieta JARZĘBOWSKA and Angelo TUSSET

<https://zoom.us/j/98053024158>

16:00-16:15	BIF 103	1	Angelo M. Tuset*, Dim Pires, Giane G. Lenzi, Itamar Iliuk, Rodrigo T. Rocha, Jose M. Balthazar	<i>Piezoelectric vibration energy harvesting from a portal frame with a shape memory alloy</i>
16:15-16:30	BIF 148	2	Mauricio A. Ribeiro, Angelo M. Tuset, Wagner B. Lenz, José M. Balthazar*, Grzegorz Litak	<i>On non-linear dynamics behaviour of a fixed offshore platform for energy harvesting</i>
16:30-16:45	CON 201	3	James F. Whidborne*, Elżbieta Jarzębowska, Varul Agarwal, A. Afiz Ishola	<i>Manipulator-aircraft dynamical system dedicated for wind tunnel testing</i>
16:45-17:00	STA 090	4	Stefanie Gutschmidt*, Seigan Hayashi, Nicholas Lam, Claudia Lenk	<i>Active MEMS amplifier for improved signal-to-noise ratios</i>

R40

16:00-17:15

Chair: Marcela MACHADO

<https://zoom.us/j/95395897096>

16:00-16:15	STA 044	1	Tomé S.D.N. Guenka, Marcela R. Machado*	<i>Influence of a cracked rod in the dynamic of a planar slider-crank mechanism</i>
16:15-16:30	STA 171	2	Csaba Budai	<i>On the stability of sampled-data systems with dry friction</i>
16:30-16:45	STA 193	3	Sebastian Uzny, Franciszek Adamek*, Łukasz Kutrowski	<i>Free vibrations of two-stage hydraulic cylinder</i>
16:45-17:00	STA 202	4	A.G. Agúndez*, D. García-Vallejo, E. Freire	<i>Analysis of the influence of tyre cross-sectional parameters on the stability of a nonlinear bicycle model with elliptic toroidal wheels</i>
17:00-17:15	NON 064	5	Dębowski Andrzej, Żardecki Dariusz*	<i>Modeling and simulation of friction processes with applications of piecewise-linear luz(...) and tar(...) projections</i>

R41

16:00-17:15

Chair: Jacek LESZCZYŃSKI

<https://zoom.us/j/93664141374>

16:00-16:15	VIB 278	1	Krzysztof Lipiński	<i>Forced vibrations in a dynamic system equipped with a mechanism which trans-pass through its singular position</i>
16:15-16:30	VIB 232	2	Marek Pluta*, Daniel Tokarczyk	<i>Measurements and sound synthesis of a guitar string re-excitation</i>
16:30-16:45	VIB 225	3	Jakub Łagodziński*, Eliza Tkacz, Zbigniew Kozanecki	<i>Determination of global damping and stiffness coefficients of journal foil bearing</i>
16:45-17:00	VIB 286	4	Miroslav Byrtus	<i>Non-synchronous vibration in a bistable system induced by FSI</i>
17:00-17:15	VIB 370	5	Eugeny V. Ternovsky*, Andrey A. Mashkantsev, Andrey A. Svinarenko, Pavel A. Zaichko	<i>A nonlinear interaction dynamics of system of the coupled autogenerators: numerical analysis of time series, chaos and bifurcations</i>

Closing ceremony, 17:15 - 17:30

<https://zoom.us/j/99322625245>